PATENT COOPERATION TREATY

DOCKETED

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

To:
MEETUS IP LIMITED
Attn. Wharmby, Martin A.
Grove House, Lutyens Close,
Chineham Court, Basingstoke
Hampshire RG24 8AG
UNITED KINGDOM

Date of mailing *(day/month/year)* 26/07/2005	
Applicant's or agent's file reference SC12815ET/PCT	**FOR FURTHER ACTION** See paragraphs 1 and 4 below
International application No. PCT/EP2004/014912	International filing date *(day/month/year)* 26/11/2004
Applicant FREESCALE SEMICONDUCTOR, INC.	

1. [x] The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

Filing of amendments and statement under Article 19:
The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.

Where? Directly to the International Bureau of WIPO, 34 chemin des Colombettes 1211 Geneva 20, Switzerland, Fascimile No.: (41–22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. [ ] The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. [ ] **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

[ ] the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

[ ] no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

Shortly after the expiration of **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90*bis*.1 and 90*bis*.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until **30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the International Searching Authority	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL–2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Mareike Zambuto

(See notes on accompanying sheet)

Form PCT/ISA/220 (January 2004)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
SC12815ET/PCT		
International application No.	International filing date *(day/month/year)*	(Earliest) Priority Date *(day/month/year)*
PCT/EP2004/014912	26/11/2004	28/11/2003
Applicant		
FREESCALE SEMICONDUCTOR, INC.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

[X] It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**
   a. With regard to the **language,** the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
      [ ] The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).
   b. [ ] With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. [ ] **Certain claims were found unsearchable** (See Box II).

3. [ ] **Unity of invention is lacking** (see Box III).

4. With regard to the **title,**
   [X] the text is approved as submitted by the applicant.
   [ ] the text has been established by this Authority to read as follows:

5. With regard to the **abstract,**
   [X] the text is approved as submitted by the applicant.
   [ ] the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings,**
   a. the figure of the **drawings** to be published with the abstract is Figure No. 1
      [X] as suggested by the applicant.
      [ ] as selected by this Authority, because the applicant failed to suggest a figure.
      [ ] as selected by this Authority, because this figure better characterizes the invention.
   b. [ ] none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2004/014912

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H03K5/13

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H03K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/186064 A1 (OOISHI TSUKASA) 12 December 2002 (2002-12-12)	1,5-8
Y	paragraphs '0005! - '0013! paragraphs '0225! - '0234! figures 30,31,55	2-4
Y	WO 02/095943 A (ATYUNIN VASILY GRIGORIEVICH) 28 November 2002 (2002-11-28)	2-4
A	page 4, line 18 - page 8, line 3; figures 1,2	1,5-8

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
24 May 2005	26/07/2005

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Meulemans, B

Form PCT/ISA/210 (second sheet) (January 2004)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/EP2004/014912

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2002186064 A1	12-12-2002	JP 2001339283 A	07-12-2001
		US 2001045856 A1	29-11-2001
WO 02095943 A	28-11-2002	EP 1410504 A2	21-04-2004
		WO 02095943 A2	28-11-2002
		US 2002196061 A1	26-12-2002

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

WODie - 26/9/05

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

FOR FURTHER ACTION
See paragraph 2 below

Applicant's or agent's file reference
see form PCT/ISA/220

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/EP2004/014912	26.11.2004	28.11.2003

International Patent Classification (IPC) or both national classification and IPC
H03K5/13

Applicant
FREESCALE SEMICONDUCTOR, INC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notifed the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:

European Patent Office - P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk - Pays Bas
Tel. +31 70 340 - 2040 Tx: 31 651 epo nl
Fax: +31 70 340 - 3016

Authorized Officer

Meulemans, B

Telephone No. +31 70 340-8905

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

   a. type of material:

   ☐ a sequence listing

   ☐ table(s) related to the sequence listing

   b. format of material:

   ☐ in written format

   ☐ in computer readable form

   c. time of filing/furnishing:

   ☐ contained in the international application as filed.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-8
	No:	Claims	none
Inventive step (IS)	Yes:	Claims	none
	No:	Claims	1-8
Industrial applicability (IA)	Yes:	Claims	1-8
	No:	Claims	none

2. Citations and explanations

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1 Reference is made to the following documents:

D1: US 2002/186064 A1 (OOISHI TSUKASA) 12 December 2002 (2002-12-12)
D2: WO 02/095943 A (ATYUNIN VASILY GRIGORIEVICH) 28 November 2002 (2002-11-28)

2 Notwithstanding the remarks made in Item VIII, the present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1 to 8 does not involve an inventive step in the sense of Article 33(3) PCT.

2.1 The document D1 is regarded as being the closest prior art to the subject-matter of claim 1 and discloses (the references in parentheses applying to this document):

Clock pulse generator (fig.30-31; par.[0225]-[0230]) apparatus comprising a clock pulse generator for generating a train of primary clock pulses each having leading and trailing edges (fig.30-31(CLKa)) defining alternately an active clock phase and a non-active clock phase (par.[0230]; fig.31(intCLK)), said clock pulse generator having a delay means (fig.30(DLY0 ... DLYk)) for producing a train of delayed clock pulses (fig.30-31(CLKb)) presenting delayed edges whose timing relative to corresponding edges of said primary clock pulses is defined by said delay means, and combining means (fig.30(76,77)) for producing a train of combined clock pulses (fig.30-31(intCLK)) presenting leading and trailing edges defined alternately by one of said delayed edges and the corresponding edge of the primary clock pulse, so that the active clock phases of said combined clock pulses have widths (fig.31(τ); par.[0229]) defined by said delay means, the variability of said widths of said active clock phases being smaller than the variability of the positions of said leading and trailing edges of said primary clock pulses (par.[0230]), and the widths of said non-

active clock phases varying as a function of variation in the positions of said primary clock pulses (par.[0230], implicit).

2.2 The subject-matter of claim 1 differs from this known document D1 in that
(1) the clock generator generates a train of return-to-zero clock pulses and
(2) is used in an apparatus for converting between analogue and digital signals comprising continuous-time sigma-delta conversion means.
As these features are independent among each other, they constitute a juxtaposition in the sense of PCT Guidelines III, 13.5.

2.3 The problem to be solved by the present invention may be regarded as providing an apparatus for converting between analogue and digital signals with low harmonic distortion.

2.4 The solution proposed in claim 1 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reasons: the Return-To-Zero technique is well known and widely used for reducing clock jitter and an apparatus for converting between analogue and digital signals comprising continuous-time sigma-delta conversion is also generally known.
When needing a low-jitter clock, the skilled person would certainly consider the clock generator disclosed in the document D1 combined with Return-To-Zero signalling.
When implementing an apparatus for converting between analogue and digital signals comprising continuous-time sigma-delta conversion, the use of a clock generator as disclosed in the document D1 can be considered as a normal design choice.

2.5 (cl.2) The skilled user, when confronted with the problem of making the delay of the cell and delay line disclosed in the document D1 process and temperature variation independent would certainly search for documents describing the construction of adjustable delay lines, and would come across the document D2 which discloses a delay means (fig.1,2) comprising a series of cascaded, substantially identical delay elements(7(1)-7(N)).

2.6 Dependent claims 3 to 8 do not contain any features which, in combination with the

features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step, see documents D1 and D2 and the corresponding passages cited in the search report.

Re Item VIII

1 The application does not meet the requirements of Article 6 PCT, because claim 1 is not clear.

1.1 The terms 'Apparatus for converting ... comprising ... conversion means' and 'and clock pulse generator apparatus comprising...' used in claim 1 are vague and unclear and leave the reader in doubt as to the meaning of the technical features to which they refer, thereby rendering the definition of the subject-matter of said claim unclear, Article 6 PCT.

1.2 More specifically, it is not clear wether both an apparatus for converting between analogue and digital signals and a clock pulse generator apparatus are claimed, or rather only an apparatus for converting between analogue and digital signals which comprises both c-t s-d conversion means and a clock pulse generator apparatus. In Item V, this last assumption is followed.